

START 9613428.1677

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LK 5835¹⁵₂

Lockheed Environmental Systems & Technologies Co.
Lockheed Analytical Services
975 Kelly Johnson Drive Las Vegas, Nevada 89119-3705
Telephone 702-361-0220 800-582-7605 Facsimile 702-361-8146

LOCKHEED MARTIN



December 15, 1995

Ms. Joan Kessner
Bechtel Hanford, Inc.
P.O. Box 969
1022 Lee Boulevard
Richland, WA 99352



RE: Log-in No.: L5835
Quotation No.: Q400000-B
SAF: B96-035
Document File No.: 1114596
BHI Document File No.: 296
SDG No.: LK5835



The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 14 November 1995.

The temperature of the cooler upon receipt was 2°C. Sample containers received agree with the chain-of-custody documentation. Sample containers were received intact. Samples designated for Hexavalent chromium analysis were not received in time to meet the analytical holding time requirements.

The case narratives included in the following attachments provide a detailed description of all events that occurred during sample preparation, analysis, and data review specific to the samples and analytical methods requested.

A list of data qualifiers, chain-of-custody forms, sample receiving checklist, and log-in report are also enclosed representing the samples received within this group.

If you have any questions concerning the analysis or the data please call Kathleen Hall at (509) 375-4741.

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Lockheed Analytical Services

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Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

" I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Sincerely,

A handwritten signature in cursive script, appearing to read "Kathleen M. Hall", followed by the word "for" in a similar script.

Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

Lockheed Analytical Services

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**CASE NARRATIVE
INORGANIC NON METALS ANALYSES**

The routine calibration and quality control analyses performed for this batch include as applicable: initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

- Two water samples were received for LK5835 and analyzed in batch 1114 bh for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following samples:

| Client ID | LAL # | | Method |
|-----------|---------|---------|--------------------|
| BOGRM5 | L5835-5 | MS, DUP | 7196 Chromium (VI) |

Holding Time Requirements

- All samples were received outside of the method-specific holding time and are flagged with an "H".

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Kay McCann
Prepared By

November 27, 1995
Date

Lockheed Analytical Services

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CASE NARRATIVE INORGANIC METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

All samples were received on November 14, 1995. The samples were logged in as L5835 and were prepared and analyzed in batch 1114 bh.

Holding Time Requirements

- All samples were analyzed within the method-specific holding times.

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Shellee McGrath
Prepared By

December 15, 1995
Date

9613428.1681

LOCKHEED ANALYTICAL SERVICES
 LOGIN CHAIN OF CUSTODY REPORT (ln01)
 Nov 14 1995, 11:18 am

Login Number: L5835
 Account: 596 Bechtel Hanford, Inc. * Richland, WA
 Project: BECHTEL-HANFORD Bechtel Hanford Project

| Laboratory Sample Number | Client Sample Number | Collect Date | Receive Date | Due PR Date |
|--|-------------------------|-----------------|-----------------|----------------|
| L5835-1 TEMP 2 Location: 157 Water 1 S SCREENING | BOGRM5 | 10-NOV-95 | 14-NOV-95 | 19-DEC-95 |
| Hold:08-MAY-96 | | | | |
| L5835-2 TEMP 2 Location: 157 Water 1 S SCREENING | BOGRM6 | 10-NOV-95 | 14-NOV-95 | 19-DEC-95 |
| Hold:08-MAY-96 | | | | |
| L5835-3 TEMP 2 Location: 157 Water 1 S 218.2 CHROMIUM | BOGRM5 | 10-NOV-95 | 14-NOV-95 | 19-DEC-95 |
| Hold:08-MAY-96 | | | | |
| L5835-4 TEMP 2 Location: 157 Water 1 S 218.2 CHROMIUM | BOGRM6 | 10-NOV-95 | 14-NOV-95 | 19-DEC-95 |
| Hold:08-MAY-96 | | | | |
| L5835-5 TEMP 2 Location: 157 Water 1 S 7196 CHROMIUM (VI) | BOGRM5 | 10-NOV-95 | 14-NOV-95 | 19-DEC-95 |
| Hold:11-NOV-95 | | | | |
| L5835-6 TEMP 2 Location: 157 Water 1 S 7196 CHROMIUM (VI) | BOGRM6 | 10-NOV-95 | 14-NOV-95 | 19-DEC-95 |
| Hold:11-NOV-95 | | | | |
| L5835-7 Location: Water 1 S EDD - DISK DEL. Water 1 S GERMANN Water 1 S INORG TYPE 2 RPT | REPORT TYPE | 14-NOV-95 | 14-NOV-95 | 19-DEC-95 |

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Signature: *Paul C. Davis*Date: 11-14-95

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Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L5835

Page 1 of 1

Data Turnaround

☐ Priority☒ Normal

| | | | | | |
|---|--------------------------|--|-----------------------|---|-----------|
| Collector K. Trapp | | Company Contact B. D. Blumenkranz | | Telephone (509) 372-9658 | |
| Project Designation 100-HR-3 Pump and Treatment | | Sampling Location 100-HR-3 Pump and Treat | | SAF No. B96-035 | |
| Ice Chest No. GWS-026 | | Field Logbook No. NA | | Method of Shipment Federal Express | |
| Shipped To Lockheed | | Offsite Property No. W96-0-0640-08 | | Bill of Lading/Air Bill No. 2904646087 | |
| Possible Sample Hazards/Remarks | | Preservation | HNO ₃ | Cool 4°C | None |
| | | Type of Container | P/G | P/G | P |
| | | No. of Container(s) | 1 | 1 | 1 |
| Special Handling and/or Storage Maintain samples between 2°C and 6°C | | Volume | 500mL | 500mL | 20mL |
| SAMPLE ANALYSIS | | Chromium - Total | Chromium VI | Activity Scan | |
| Sample No. | Matrix* | Date Sampled | Time Sampled | | |
| BOGRM5 | W | 11/10/95 | 1007 | X | X |
| BOGRM6 | W | 11/10/95 | 1015 | X | X |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| CHAIN OF POSSESSION | | Sign/Print Names | | SPECIAL INSTRUCTIONS | |
| Relinquished By K. Trapp | Date/Time 11/13/95 | Received By B. Blumenkranz | Date/Time 11-13-95 | | |
| Relinquished By B. Blumenkranz | Date/Time 11-13-95 | Received By | Date/Time | | |
| Relinquished By | Date/Time | Received By | Date/Time | | |
| Relinquished By | Date/Time | Received By | Date/Time | | |
| LABORATORY SECTION | Received By A. Miller | Title Sample Custodian | | Date/Time 11-14-95 / 0940 | |
| FINAL SAMPLE DISPOSITION | Disposal Method | | Disposed By | | Date/Time |

2891821682

Matrix*

S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
OS - Drum Solids
DL - Drum Liquids
T - Tissue
WI - Wipe
L - Liquid
V - Vegetation
X - Other

Environmental
Restoration
Contractor

ERC Team

Interoffice Memorandum

Job No. 22192
Written Response Required: NO
CCY: N/A
COT: R0808-3
TID: N/A
ERA: N/A
Subject Code: 5480

TO: Dave Blumenkranz H4-90

DATE: April 26, 1995

COPIES: Doug Bowers N3-05

FROM: Mike Wesselman
Radiological Controls
N3-06/376-2084

| | | | | | |
|-------------------|-----------|---------|----------------|------------|---|
| Post-it® Fax Note | 7671 | Date | 5/1 | # of pages | 1 |
| To | D. Bowers | From | D. Blumenkranz | | |
| Co./Dept. | ITH/Samp. | Co. | CHI/E&S | | |
| Phone # | 376-1007 | Phone # | 372-9658 | | |
| Fax # | 376-5991 | Fax # | | | |

SUBJECT: EXEMPTION OF SAMPLES FROM 100-HR-3 PUMP AND TREAT FROM TOTAL ACTIVITY ANALYSIS.

After reviewing sampling data recorded on GeoDat as well as data from the latest resin change at the unit, it has been concluded that there is no need to perform total activity analysis of water sample from 100-HR-3 prior to offsite shipment. Water from all wells in the area is well below levels which would deliver 100 millirem per year CEDE to any one drinking two liters a day, no water exceeds the 2000 picocuries per gram limit for shipment as non radioactive by Department of Transportation. Activity trends in all wells have been downward for the last twenty years. Sample from the pump and treat system itself indicate less than six picocuries per gram of tritium and less than ten picocuries per liter of both alpha and beta contamination. All discharges of radioactive material to the ground in the 100-D Area have ceased, the actions of the pump and treat system do not appear to be mobilizing previously deposited materials. Based on the above information and the results of total activities performed to date, there is sufficient process knowledge to conclude that preshipment screening of water samples is no longer required.


Mike Wesselman

maw

Distribution

0012

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SAMPLE CHECK-IN LIST

Date/Time Received: 11-14-95 / 9:45amSDG#: 1112Work Order Number: 1114SAF #: B96-0355Shipping Container ID: 1112 Chain of Custody #: 0.2

1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Sample temperature 28
4. Vermiculite/packing materials is Wet ☐ Dry ☒
5. Each sample is in a plastic bag? Yes ☒ No ☐
6. Sample holding times exceeded? Yes ☒ No ☐

7. Samples have:

 tape hazard labels
 X custody seals appropriate sample labels

8. Samples are:

 X in good condition leaking
 broken have air bubbles

9. Is the information on the COC and Sample bottles in agreement?

Yes ☒No ☐Notes: Chromium IV was received Passed Holding TimeSample Custodian/Laboratory: Paul Davis / LHS Date: 11-14-95Telephoned To: Kathleen Hall On 11-14-95 By Paul Davis
FAXED
P.O. 11-14-95

LOCKHEED MARTIN

**Sample Login
Login Review Checklist**

Lot Number LS835

The login review should be conducted by that person logging in the samples as well as a peer. Please use this checklist to ensure that such reviews occur in a uniform basis. Please sign and date below to verify that a login review has occurred. This checklist should be affixed to each login package prior to distribution.

For effective login review, at a minimum, five reports from the login process are required. These are the COC (or equivalent), the login COC report, the sample summary report, the sample receiving checklist, and the login quotation. Before beginning review, ensure that these five components are available. Jobs with single component samples, the sample summary report may be omitted.

SAMPLE SUMMARY REPORT

| | <u>YES</u> | <u>NO</u> | <u>N/A</u> | <u>Comment</u> |
|---|-------------------|------------------|-------------------|-----------------------|
| 1. Are all sample ID's correct? | <u>X</u> | — | — | _____ |
| 2. Are all samples present? | <u>X</u> | — | — | _____ |
| 3. Are all matrices indicated correctly? | <u>X</u> | — | — | _____ |
| 4. Are all analyses on the COC logged in for the appropriate samples? | <u>X</u> | — | — | _____ |
| 5. Are all analyses logged in for the correct container? | <u>X</u> | — | — | _____ |
| 6. Are samples logged in according to LAS batching procedures? | <u>X</u> | — | — | _____ |

LOGIN CHAIN OF CUSTODY

| | <u>YES</u> | <u>NO</u> | <u>N/A</u> | <u>Comment</u> |
|---|-------------------|------------------|-------------------|-----------------------|
| 1. Are the collect, receive, and due dates correct for every sample? | <u>X</u> | — | — | _____ |
| 2. Have all appropriate comments been indicated in the comment section? | <u>X</u> | — | — | _____ |

SAMPLE RECEIVING CHECKLIST

| | <u>YES</u> | <u>NO</u> | <u>N/A</u> | <u>Comment</u> |
|---|-------------------|------------------|-------------------|-----------------------|
| 1. Are all discrepancies between the COC and the login noted (if applicable)? | — | — | <u>X</u> | _____ |

Paul Davis
primary review signature

11-14-95
date

[Signature]
secondary review signature

11.14.95 0014
date

1114596

Lockheed Analytical Services Sample Receiving Checklist

Client Name: Bethyl - HartfordJob No. L5835Cooler ID: 42

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: 28temperature of temp. blank upon receipt: —

| | Yes | No | * Comments/Discrepancies |
|-------------------------------------|-------------------------------------|----|--------------------------|
| custody seals intact | <input checked="" type="checkbox"/> | | |
| chain of custody present | <input checked="" type="checkbox"/> | | |
| blue ice (or equiv.) present/frozen | <input checked="" type="checkbox"/> | | |
| rad survey completed | <input checked="" type="checkbox"/> | | |

SAMPLE CONDITION UPON RECEIPT

| | Yes | No | * Comments/Discrepancies |
|--|-------------------------------------|----|--------------------------|
| all bottles labeled | <input checked="" type="checkbox"/> | | |
| samples intact | <input checked="" type="checkbox"/> | | |
| proper container used for sample type | <input checked="" type="checkbox"/> | | |
| sample volume sufficient for analysis | <input checked="" type="checkbox"/> | | |
| proper pres. indicated on the COC | <input checked="" type="checkbox"/> | | |
| VOA's contain headspace | | | |
| are samples bi-phasic (if so, indicate sample ID'S): | | | <u>no</u> <u>OK</u> |

MISCELLANEOUS ITEMS

| | Yes | No | * Comments/Discrepancies |
|----------------------------------|-------------------------------------|----|---|
| samples with short holding times | <input checked="" type="checkbox"/> | | <u>confirmation to, was received passed holding</u> |
| samples to subcontract | | | <u>1441 Time</u> |

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date:

Paula Davis 11-14-95

Sent to the client (date/initials):

** Client's signature upon receipt:

Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt

** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146

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Lockheed Analytical Laboratory
SAMPLE SUMMARY REPORT (su02)
Bechtel Hanford, Inc. * Richland, WA

| Client Sample Number | LAL Sample Number | SDG Number | Matrix | Method |
|-------------------------|-------------------------------|---------------|-------------------------|--|
| BOGRM5 - | L5835-1 L5835-3 L5835-5 | | Water Water Water | SCREENING - 218.2 CHROMIUM - 7196 CHROMIUM (VI |
| BOGRM6 - | L5835-2 L5835-4 L5835-6 | | Water Water Water | SCREENING - 218.2 CHROMIUM - 7196 CHROMIUM (VI |
| REPORT TYPE - | L5835-7 L5835-7 | | Water Water | EDD - DISK DEL.- INORG TYPE 2 RPT |

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LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: B0GRM5 | Date Collected: 10-NOV-95 |
| Matrix: Water | Date Received: 14-NOV-95 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | Project Reporting Limit | Data Qualifier(s) | Date Analyzed | LAS Batch ID | LAS Sample ID |
|----------------------|-------|--------|--------|-------------------------------|----------------------|------------------|-----------------|------------------|
| Chromium, hexavalent | mg/L | 7196 | 0.69 | 0.10 | HD(1:5) | 15-NOV-95 | 30269 | L5835-5 |

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LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: B0GRM6 | Date Collected: 10-NOV-95 |
| Matrix: Water | Date Received: 14-NOV-95 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | Project Reporting Limit | Data Qualifier(s) | Date Analyzed | LAS Batch ID | LAS Sample ID |
|----------------------|-------|--------|--------|-------------------------|-------------------|---------------|--------------|---------------|
| Chromium, hexavalent | mg/L | 7196 | 0.47 | 0.040 | HD(1:2) | 15-NOV-95 | 30269 | L5835-6 |

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LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: B0GRM5 | Date Collected: 10-NOV-95 |
| Matrix: Water | Date Received: 14-NOV-95 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | IDL | RDL | Data Qual | Dilution | Date Analyzed | LAS Batch ID | LAS Sample ID |
|-----------------|-------|--------|--------|--------|-------|-----------|----------|---------------|--------------|---------------|
| Chromium, Total | mg/L | 200.7 | 0.78 | 0.0010 | 0.010 | | 1 | 14-DEC-95 | 31299 | L5835-3 |

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LOCKHEED ANALYTICAL SERVICES

Sample Results

| | |
|--------------------------|---------------------------|
| Client Sample ID: B0GRM6 | Date Collected: 10-NOV-95 |
| Matrix: Water | Date Received: 14-NOV-95 |
| Percent Solids: N/A | |

| Constituent | Units | Method | Result | IDL | RDL | Data Qual | Dilution | Date Analyzed | LAS Batch ID | LAS Sample ID |
|-----------------|-------|--------|--------|--------|-------|-----------|----------|---------------|--------------|---------------|
| Chromium, Total | mg/L | 200.7 | 0.50 | 0.0010 | 0.010 | | 1 | 14-DEC-95 | 31299 | L5835-4 |